



The μ forCE™
Demonstration System



PRODUCT BRIEF

ElanSC400 Microcontroller and Windows® CE

The μ forCE™ Demonstration System for Mobile and Embedded Applications

The μ forCE demonstration system provides a reference/demonstration platform for mobile and embedded product development using the ElanSC400 microcontroller and the Microsoft® Windows CE operating system. The combination of the ElanSC400 microcontroller and the Windows CE operating system offers an attractive alternative to system designers who are looking to enable smaller, more powerful dedicated systems.

The ElanSC400 microcontroller offers a low power Am486® processor core, PC/AT compatibility, and a sophisticated memory management unit to ensure high performance and efficient mobile designs. The ElanSC400 microcontroller also combines all common logic and I/O functionality associated with an embedded or mobile computing system on a single device.

Windows CE is a portable operating system that can run on any CPU with 32-bit performance and a memory management unit. The Windows CE operating system is superior to Windows 3.1 or Windows 95 for most GUI (Graphical User Interface) embedded applications. The Windows CE O/S also offers "pocket" versions of Microsoft applications: Pocket Excel, Pocket Word, Pocket Internet Explorer (PIE), and Inbox (EMAIL).* Microsoft plans to add more connectivity features in future versions of the Windows CE operating system such as game/web features and more connectivity options.

High performance, small size, easy connectivity, and low power consumption are the key features of the μ forCE demonstration system. This system can serve as a reference platform for mobile/embedded computing designs, and will enable the designer to understand the functionality of an ElanSC400 microcontroller/Windows CE O/S-based application.

PRODUCT HIGHLIGHTS

The μ forCE Demonstration System Board:

- ElanSC400 microcontroller that supports:
 - ⇨ External matrix scan keyboard
 - ⇨ One Flash Minicard slot
 - ⇨ One PCMCIA type 2 slot
 - ⇨ IrDA infrared
 - ⇨ Serial port
- Trittech 10-bit digitizer controller for pen input
- Crystal audio chip for very high quality and WAV audio output
- Power supply logic based on Micrel power controller chips
- 4 Mbyte ROM
- 4 Mbyte DRAM
- Demo of Windows CE operating system shell and sample applications, including Internet Explorer and games

The system is also shipped with:

- 64 key matrix scan keyboard
- 480 x 320 ALPs LCD with resistive digitizer overlay
- NiMH battery pack
- A/C wall power converter cube (providing DC 12 V input to μ forCE board)
- Documentation: theory of operation, schematics, data sheets, and bill of materials

* "Pocket" version software is sold separately from the Windows CE operating system

ÉlanSC400 Microcontroller FEATURES:

- 33- and 66-MHz @ 2.7 V or 3.3 V, 8 Kbyte cache, full static design
- High performance, low power, small packaging
- Integration of PCMCIA and graphics controller, PMU, UART, parallel and IrDA port
- Built-in functions include: 8259A, 8237A, 8254, RTC, RAM Ctrl, ROM Ctrl, 8-16-bit ISA bus controller, Local bus controller
- Integration of PLL, PMU, and lower voltage device offering
- µforCE Demonstration System (features ÉlanSC400 microcontroller)
- ÉlanSC400 microcontroller evaluation board (features Élan SC400 microcontroller)

ÉlanSC400 Microcontroller BENEFITS:

- Enhanced Am486 CPU Core
- Optimized for mobile systems
- Low-cost graphics to support Windows CE O/S
- Single-chip with integrated compatibility
- Built-in power management
- Reference platform for mobile or embedded computing designs
- Complete evaluation, debug, and prototyping system for ÉlanSC400 microcontroller/Windows CE-based designs

Windows CE FEATURES:

- 32-bit, multi-tasking, multi-threaded operating system
- Windows CE OAK (OEM Adaptation Kit)
- Visual C++® development system for Windows CE (Software Development Kit (SDK) and Device Driver Kit (DDK))
- Familiar Windows user interface with lots of connectivity
- Compact and scalable design, providing high performance in low-memory conditions

Windows CE BENEFITS:

- Portable (ROM) O/S, unobtrusive power management supporting long battery life on mobile devices
- Micro-kernel, specific CPU management implementations, API stack, Windows CE O/S shell, Pocket Internet Explorer (PIE), Solitaire, tools and compilers, and driver code examples
- Robust C++ cross-compiler; SDK can create applications to run on any Windows CE O/S
- Great GUI shell—no learning curve
- Allows for future support of a range of embedded, mobile, consumer, or multimedia product lines

bsquare OAK FEATURES:

- OAK developed specifically for ÉlanSC400 microcontroller/Windows CE O/S-based designs and custom design support

bsquare OAK BENEFITS:

- Provides the HAL and drivers support to complete the Microcontroller OAK for the ÉlanSC400 microcontroller; can provide a complete turn-key design or just the OAK

Operating System Design Support

The µforCE demonstration system was developed by AMD, Microsoft, and bsquare. Each of these companies extend ÉlanSC400 microcontroller/Windows CE operating system design support beyond the µforCE system by providing evaluation hardware, OEM adaptation kits (OAKs), software developer kits (SDKs), device driver kits (DDKs), as well as design and training expertise to support quick time-to-market for portable and embedded designs.

AMD tools include:

ÉlanSC400 microcontroller silicon: available in 33- and 66-MHz speeds
ÉlanSC400 microcontroller evaluation board for extended development of ÉlanSC400 microcontroller/Windows CE O/S designs; provides one platform for fast evaluation, debugging, and prototyping of designs
email: lpdsupport@amd.com
Web: <http://www.amd.com/products/lpd/lpd.html> (for general information on the µforCE demonstration system)

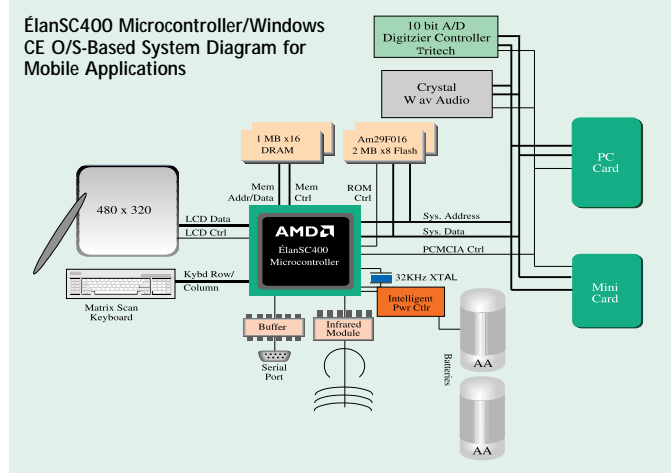
Microsoft tools include:

Windows CE OEM Adaptation Kit (OAK) for sale by Microsoft or direct distributors
Visual C++ Development System: cross compilers, assemblers, remote debuggers, and simulation tools: available through Microsoft or direct distributors
Software Developer Kit (SDK) available on the Microsoft web site: www.microsoft.windowsce/hpc/developer
Device driver kit available on the Microsoft web site: www.microsoft.windowsce/hpc/developer
Web: <http://www.microsoft.com/windowsce/developer/oem/default.htm>

bsquare tools include:

ÉlanSC400 microcontroller OEM adaptation kit (OAK): includes drivers and HAL (Hardware Abstraction Layer) specific to the ÉlanSC400 microcontroller CPU and system logic
Windows CE design and training experience
email: sales@bsquare.com
Web: <http://www.bsquare.com/consulting>

ÉlanSC400 Microcontroller/Windows CE O/S-Based System Diagram for Mobile Applications



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One AMD Place P.O. Box 3453
Sunnyvale, California 94088-3453
408-732-2400
800-538-8450
TWX 910-339-9280
TELEX 34-6306

TECHNICAL SUPPORT & LITERATURE ORDERING

USA & Canada 800-222-9323
USA PC CPU Technical Support 408-749-3060
JAPAN 03-3346-7550
Fax 03-3346-9628
FAR EAST Fax 852-2956-0599
EUROPE & UK +44-(0)-1276-803299
Fax +44-(0)-1276-803298
BBS +44-(0)-1276-803211
FRANCE 0800-908621
GERMANY 089-450-53199
ITALY 1678-77224
ARGENTINA 001-800-200-1111,
after tone 888-263-8500
BRAZIL 000-811-718-5573
CHILE 800-570-048
MEXICO 95-800-263-4758
PC CPU Technical Support E-mail:
hwsupt@brahms.amd.com
Europe Technical Support E-mail:
euro.tech@amd.com
Europe Literature Request E-mail:
euro.lit@amd.com
<http://www.amd.com>

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